User Manual of Battery Charger

Zhejiang GBS Energy Co., Ltd.
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Welcome to use our GBS series Intelligence Battery Charger. Please read this manual before using the instrument. Also please keep this manual with much care for future reference.

⚠ ARNING

Wiring precautions

If failure or error of this instrument could result in a critical accident of the system, install a external protection circuit to prevent such an accident.

In order to prevent instrument damage or failure, protect the power line and the input/output lines from high currents by using fuses with appropriate ratings.

Power supply

In order to prevent instrument damage or failure, supply power of the specified rating.

In order to prevent electric shock or instrument failure, do not turn on the power supply until all of the wiring is completed.

Never use the instrument near inflammable gases

In order to prevent fire, explosion or instrument damage, never use this instrument at a location where inflammable or explosive gases or vapour exist.

Never touch the inside of the instrument

In order to prevent electric shock or burns, never touch the inside of the instrument .only authorized service engineers can touch the inside of the instrument to check the circuit or to replace parts. High voltage and high temperature sections inside the instrument are extremely dangerous.

Never modify instrument

In order to prevent accident or instrument failure, never modify the instrument.

Maintenance

In order to prevent electric shock, burns or instrument failure, Only authorized service engineers may replace parts .In order to use this instrument continuously and safely, conduct periodic maintenance. Some parts used in this instrument have a limited service life and may deteriorate over time.

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1. Introduction

Ningbo Thunder Sky Green Power Sources Co., Ltd. is specialized in the study and production of the intelligence battery charger for long terms. The company has passed ISO 9001:2000 quality system.

TSL series battery charger is based on MCU technology, with pulse charging mode, the charging voltage has temperature compensation automatically. When charging, the battery temperature rising is very small, and advanced charge with heating for effectively prolonging the service life of the battery. It could be used in the various electric cars the field of tourism, railway, mine, post and telecommunication.

2. Main specificity

2.1 Switching power technology, with small size, light weight high efficiency and full function.

2.2 Suitable for 6V、12V、24V、36V、48V and 72V battery etc.

2.3 Wide range of output current for choice, from 1A to 100A by user.

2.4 MCU control charging quickly based on all

kinds of battery charging curve, check correctly the whole process of the charge and the discharge, ensuring battery full of charge.

2.5 Over current、over voltage、overheat、short circuit, battery polarity anti-connected protection.

2.6 Adjusting voltage automatically according to weather with temperature compensation function.

2.7 Design the special charging curve by user.

3. technical parameter

Input voltage	110VAC、220VAC、380VAC
Power frequency	47-63Hz
Used battery voltage	6V、12V、24V、36V、48V、72V、etc
Output current	1.8、3、5、8、10、15、20、25、30、40、50、80、100A
Efficiency	70-85%
Charge time	5hours(discharge depth 50%)
Insulate voltage	I/P-O/P 1.5KVAC,I/P-FG 1.5KVAC,O/P-FG 1.5KVAC
Insulate resistance	Input-Output ≤500MΩ

② Battery Charger

③ Used battery voltage (v):6、12、24、36、48、72 etc.

④ Max output current (A):1.8、2、3、5、10、15、20、30、100 etc.

⑤ Input voltage:

A: 110VAC

B: 220VAC

C: 380VAC

⑥ NO symbol: for Pb-Acid battery

N: for MH-Ni battery

L: for Li-ion battery

5. Main model and applications

Model	application	size	weight	power
TSL 12-10 TSL 12-15 TSL 12-30	Electric forklift and Electric stacker	160*150*65mm 200*150*75mm 300*155*90mm	1.3Kg 1.5Kg 2 Kg	180W 280W 380W
TSL 24-5	e-scooter, e-bike	190*95*53mm	1.2Kg	150W
TSL 24-15 TSL 24-20 TSL 24-25 TSL 24-40 TSL 24-80	Electric forklift Electric stacker	255*150*65mm 200*156*75mm 265*155*80mm 335*225*110mm 360*280*180mm	1.5Kg 2.2kg 2.8kg 5.5Kg 7.5kg	450W 600W 750W 1200W 2500W
TSL 36-2	e-bike	160*90*55mm	0.5kg	90W
TSL 36-20 TSL 36-25	Electric golf car, electric vehicle	265*155*80mm 265*155*80mm	2.9kg 3 kg	900W 1125 W
TSL 48-5 TSL 48-10	e-motor	200*150*75mm 200*150*75mm	2 Kg 2.2 Kg	300W 600W
TSL 48-20 TSL 48-25 TSL 48-30 TSL 72-30	Electric golf car, electric bus electric car, electric vehicle	265*155*80mm 265*155*80mm 335*225*110mm 360*280*180mm	3 kg 3.2kg 5.5kg 8 Kg	1200W 1500W 1800W 3600W

6. How to use

6.1 Turn on:

6.1.1 First, confirm the charger output voltage is suitable for the battery voltage, then connect the battery to the charger, confirm the pole is correct. The positive pole of DC output terminal connected to the positive pole of the battery, the negative pole of DC output terminal connected to the negative pole of the battery. **Do not anti-connected please**. If the charger DC output is with a switch, please turn on the DC output switch.

6.1.2 Check the voltage of the AC input is suitable for the input voltage of the charger or not. Confirm the AC input is correct, turn on the power supply.

6.1.3 The charger start ramp charging after auto-testing in 1 minute

6.2 Indicating LED signification

6.2.1 Power indicating and battery test LED:

It is green when connection is correct, it is red when anti-connection. If it charges to red when charging, it shows that the output line is cut, loose contact. Overheat protection or over current protection. The charger has no output when the

LED is red. Please check the charger and the connection, try charging again.

6.2.2 Charging state LED:

It is red at the beginning of charging, it is orange when 90% full, and it is green when charging is full .It is not indicate when anti-connection. no-connection or the line cut.

6.3 Turn off

When the charging is full or you wait to turn off at the anytime, you must turn off the charger power supply first, then cut off the battery and the charger.

7. operation environment

7.1 Above the sea-level≤2000m.

7.2 Ambient temperature -10℃～50℃

7.3 Ambient humidity 5%～70%RH

7.4 Storage temperature -10℃～60℃

7.5 Without conductive dust

7.6 Without explosive dust

7.7 Without corrosive gas and steam damaged to metal and isolator

7.8 keep away from rain and snow

7.9 Mounting slop ≤5 degree

8. Mounting

The charger may be used as mobile charger or mounted on the equipment. There is at least 100mm space between intake side and outside side. Don’t choke the air outlet and heat sink hole, otherwise the charging function will be worse and the charger may be destroyed.

9. Maintenance and service

9.1 The charger must be set at ventilated, dry and dust-less place to prevent the reduction of the performance of the charger.

9.2 Find the charger is not working, check it please. Anti-connection, short circuit, the voltage is suitable for battery or not, over heat .over current. Try turning on again please.

9.3 If the customers find other troubles, please contact us or our agent.